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ABSTRACT

This paper projects an image of the future from the present to early in the next century and provides a scenario of a day spent in a school for young children in 2001. The image of the future is based on a chronicle of events which might conceivably happen. The scenario, set in one particular time and place in the future, describes what early childhood education might be like. Among future events envisioned are an oil crisis, nuclear plant accidents, continued labor strikes and a depression leading to change in the direction of labor intensive agriculture, worker-owned industries and businesses, and personally-owned power sources. Other changes are the establishment of life-long education, a decrease in population growth, and more diversified family structures. The futuristic scenario depicts a school where children bring their parents and siblings at all times of day and night to engage in learning activities, including computer programs, a holographic theater, and sensory nooks. Children also stay overnight at the school when they have family problems, and they help grow and cook their own food. (Author/SS)

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EARLY CHILDHOOD EDUCATION: A PROJECTION FOR 2001

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Fall, 1979

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FUTURISM AND EARLY CHILDHOOD EDUCATION

In the past, there was no real need to think about the future: it would simply be more of the same. However, beginning with the industrial revolution, the rate of change has begun to accelerate. At first, change was almost imperceptible during any one person's lifetime. Today, change is not only inescapable during our lifetime, it is obvious from year to year, often from month to month.

We in early childhood education, like our children, have a tendency to be very present oriented. We don't really ignore the future, but, like our ancestors, we tend to believe that it will basically be an extension of the present. However, I suggest that unless we begin to think more realistically about the future that we face, we will do both ourselves and the children we work with a great disservice.

The children we are working with today will be adults in a world far different from the one we now live in--the world of 1979. While it is impossible to accurately and completely predict the future, we can identify the major problems and areas of change we face, analyse how these will affect our children, determine what skills and characteristics our children will need not just to survive but to be happy and fully functioning citizens of the future, and incorporate these understandings into our curriculum today.

Future History and Scenario

I'm going to share with you now a future history from the present until early in the next century, and a scenario, a day spent in a school for young children in 2001. A future history is a chronicle of events which might conceivably happen in the future. It is written in the past tense as though these events actually had happened, just as though a reader in our future picks up a book and reads about events in his own past. A scenario, rather than being a chain of events over a period of months or years, is set in one particular time in the future. It is a more broadly based description of what life at one particular time in the future might be like.

These two techniques, the future history and the scenario, were originally developed by the military to assess the possible outcomes of various events which might affect the security of this country. The Rand Corporation and other think tanks were asked to determine the possible outcomes of certain "what if" questions. For example: During the late 1950s, what if Russia attacked the U.S.? What if the U.S. attacked first? What would be the effects of a global nuclear war? More recently, what if Russia attacked China? Or vice versa? What if terrorists detonated a nuclear device in London or New York? More recently businesses and various government agencies have used future-forecasting techniques on a fairly wide scale.

An example of a future history and a scenario for early childhood education in 2001 follows.

EARLY CHILDHOOD EDUCATION: A PROJECTION FOR 2001

FUTURE HISTORY

Early 1980s

* The oil crisis of the preceding decade became more and more acute as supplies diminished, imports dropped, and prices soared. The few parts of the world where oil remained plentiful--Mexico, China, the Middle East--reduced exports both to preserve the fuel for their own burgeoning industries and to exact higher prices for what they did sell to the US and Europe. Oil rationing became progressively more strict.
* Government research money became increasingly available for the development of alternative sources of energy such as solar, wind, wave, coal gasification, and nuclear power.

Mid 1980s

* Other raw materials became scarce enough that the government extended its rationing program to include various metals and water. The soaring cost of paper products led to the increased use of electronic information storage.
* Public awareness of industrial and other types of pollution grew as more and more people felt the effects of air and water pollution, chemical dumps, etc. Several major accidents in nuclear plants around the world including a core meltdown in a US reactor causing hundreds of deaths, radiation sickness in thousands, and the loss of hundreds of square miles of once fertile farmland resulted in the termination or restriction of

the use of nuclear power in this country and in much of the rest of the world.

* Continued labor strikes, scarce and expensive raw materials, and rationed power caused many industries and businesses to fail.

Late 1980s

* Recession and inflation resulted in the depression that had threatened since the 1970s.

Late 1980s and 1990s

* People became fed up with the unreliable and expensive nation-wide system of production and distribution and turned to a simpler lifestyle, both by choice and by necessity.
* The desire for independence prompted many people to return to a rural lifestyle. Agriculture became more labor intensive and distribution more localized. Worker-owned industries and businesses became an increasing part of local economies. Small is, indeed, beautiful.
* Alternate sources of power became highly developed. With tax incentives adding a stimulus, homeowners and businesses rushed to install personally owned power sources, finally freeing them from the role of injured bystander in utility companies' labor-management wars.
* The nation pulls out of the depression.

Social and educational changes during these years

* An increasing number of women of all ages in the upper levels of government resulted in a heightened awareness of the

importance of education and family services.

* It became obvious that people both needed and wanted life-long education to facilitate job changes and provide for more productive use of leisure time. Major changes in lifestyles resulting from the depression made the need for continuing education obvious. New legislation facilitated far-reaching changes in the educational system.
* Worldwide population growth slowed as a result of the depression as it did in the US during the 1930s. The declining growth rate was further facilitated in this country by improved contraception, tax breaks for smaller families and tax increases for larger families, cash bonuses for voluntary sterilization, and increasing social pressure to limit family size. In countries where these measures did not work, governments often resorted to putting contraceptive chemicals in the water supplies and/or forced sterilization after a certain number of children. The starvation rate dropped dramatically.
* Family structure became more diversified. Types included nuclear, one-parent, multi-parent, and extended families. Children often experienced more than one type of family structure.
* Society's attitude toward parenting changed over the years. Educators, with the help of the government and the media, finally got across the idea that parenting is a learned, not an innate ability. This relieved parents of the terrible burden of expected perfection and freed them to seek help whenever they needed it. Children came to be perceived as people, not possessions.

SCENARIO

I am awakened by the sunshine streaming through the skylight above my bed and the sound of children outside my room, confused as I always am when I travel. As awareness returns, I remember that I am staying at Hillside House, a part of the Hillside School. I am a member of a special Congressional Commission on Early Education, investigating the best of the modern schools and taping a report for the Library of Congress Computer Network.

When I arrived late yesterday afternoon, I was struck by the beauty of this school's setting, several acres of woods and hills on the edge of a small midwestern city. The school itself is set into a hillside, mostly underground except for its south-facing glass wall. Play areas abound, taking advantage of the natural contours and vegetation. There are no huge ugly blacktopped areas here, either for play areas or for parking old-fashioned private cars, as in the past. Below the school lies the vegetable garden and enclosed chicken yard. Windmills and solar collectors top the hill. Near the school and also set into a hill is Hillside House, a building very similar to the school. None of the manmade additions to the landscape detracts from the natural beauty of the area.

The city bus dropped me off near the school. My taping crew will follow in a few days after I have had a chance to get to know the school, its staff and children, and plan the report for the Library of Congress Computer Network. I was greeted by Linda Dabney, director of the school, who currently lives here with her

husband and children. One of the teachers also lives here, and various other teachers, children, and others associated with the school stay here periodically.

As we walked across the terrace toward the glass doors leading into the school, Linda explained that even though the main part of the school day was over, the school was far from deserted. We entered a large, bright room, half-domed in shape, which was filled with all sorts of equipment for the children, small furniture, plants, and a number of computer terminals of several types. Several children of various ages from about three to twelve were using numerous pieces of equipment and working on assorted projects around the room, sometimes alone or often in the company of other children or adults. Both older children and adults were busy at the computer terminals.

Noticing my surprise at finding people here at that hour, Linda said, "The school is never closed. We think of it as a community resource for our children and their parents. We feel that we are doing things right when it gets this much use outside of regular hours. The children love to bring their parents and siblings here. After all, it's where they work all day. The adults find it a pleasant place to further their own learning through all the computer programs available over the library and learning networks. We conduct parenting meetings here and often bring in people in various fields to share their expertise with both teachers and parents. Parents also meet here for other purposes. For example, one of the rooms, actually we call them nooks, around the periphery of this main room, contains a holographic

theater, and a number of people are in there now watching the United Nations astronaut team landing on Mars."

Linda then showed me the nooks that circled the main room. They vary in size, from the fairly large holographic theater to child-sized sensory nooks. The sight and sound nooks contain very advanced visual and sensory equipment which can be easily operated by the children to produce a variety of effects. A tactile nook contains textures of all kinds, and because of its small size, the temperature inside can be changed readily. A gustatory and olfactory nook offers the children a chance to sample a wide variety of tastes and smells. Another series of three small nooks, interconnected with a child-sized crawl space, is devoted to objects from the past, present, and future. These are changed periodically, and currently focus on transportation. Each nook contains transportation toys from the appropriate time span, and movies and pictures are projected on the walls. For example, the past nook has toy-sized private automobiles, semi-trailers, diesel locomotives, oil tankers, a series of airplanes from biplanes to a 747, a model of the original space shuttle, the Enterprise, and so forth. The past, present, and future nooks are designed to help the young child more easily grasp the concept of the passage of time, to understand his own position in the present as distinct from the past and the future, and to understand the relationship of all three.

Yesterday's impressions were very positive and I'm looking forward to seeing the school in full swing today. After having breakfast with Linda, her family, assorted children, and Debra

Cromwell, the other teacher who lives here, I ask about the children staying at Hillside House.

Linda responds, "All the children get a chance to stay here during the year. It's more or less a vacation from home. Others stay when there's an illness in the family or problems of other kinds. Since we no longer expect parents to be perfect, we realize that there are stressful times when parents and children need to be away from each other for a little while. We can provide a familiar, secure place for the children to stay until the people involved have had a chance to begin working out their problems. We also suggest various community resources to the parents. We enjoy having the children here and have found that providing temporary relief in stressful family situations helps speed resolution of many problems."

As we walk toward the school, children begin arriving by bus. They greet Linda, and several ask me why I am visiting. Some remain outdoors to play, and others enter the building with us and begin choosing activities. Most of the children seem to have particular things already in mind. A few wander around, curious to see what others are doing before beginning their own work.

A small group gathers around Debra, and I join them. The children are discussing their dreams of last night. A three-year-old recounts a frightening dream about being chased by a tiger. Debra stresses that next time he sees a tiger or anything else frightening in a dream that he should chase it away or make the frightening being give him a gift. A slightly older child

says that she met a huge dinosaur in her dream. She was scared but she asked him for a gift and he sang a song which she, in turn, sings for the group.

Later I ask Debra about this dream discussion. She says, "We've known for a long time that dreams are one key to the subconscious and through them we can better understand ourselves. We've also learned that many people can control their dreams to a certain extent, and many creative ideas or solutions to problems can come through the medium of dreams. The Senoi, a primitive culture, developed this ability much farther than we previously believed possible and some of the suggestions I made to the children this morning came from them. Earlier this year one of our five-year-olds was given a beautiful painting by a dream friend which he reproduced in chalk on the terrace. The other children were very careful to walk around it, and it remained intact until it was washed away by a rainstorm."

As I continue to observe the children, I notice that many of them are working in pairs or in small groups. Older children often work with younger ones. For the most part, the children are very cooperative, seem to be learning a lot from each other, and plainly enjoy each other's company. There are few consumable materials in the school, a big difference from the hyperabundance of my own childhood. Consumable materials such as paper are either far too expensive to use indiscriminately or are simply not available. Much of the equipment is wooden, is well cared for by the children, and is repaired whenever an accident happens. Some of the furniture and many toys have been made by parents.

For creative activities, the children often use natural materials they have gathered around the school grounds or industrial cast-offs. One child is making a collage using bird and chicken feathers, seeds, and leaves. All these art works are so much more imaginative than the cut, paste, and crayon products I remember.

I am interested in seeing how the children use the computer terminals. Many of the terminals have one or two children at them, usually older ones. However, I see one very small child ask for one of his favorite stories at a voice-activated terminal. It is much like reading a book--the pictures appear page by page and the story is narrated while a line of light underlines the words as they are spoken. Since the child is speaking in time with the narrator, I know that this is a story which has been enjoyed many times before. Two six-year-olds are enjoying a game at another terminal, and another older child is dissecting a picture of a frog with a light pencil at a third terminal.

It's a beautiful, sunny spring day, and I follow a group of children out onto the terrace as they wheel out a cart of wood-working materials. A retired woman soon arrives on one of the buses and joins them. A boy and girl are working with her on a bird house. They explain to me that this is to be a martin house. Because martins eat insects, this house will be placed near the vegetable garden.

Another group of children invites me to see the obstacle course they are constructing through the woods. They plan to time each other with a stop watch, keep charts, and see how much

practice it will take to better each individual time. There are logs to jump over, stepping stone pathways, trees to climb, and a twisting, turning course. Some of the older children are coaching the younger ones.

The cook emerges from the school with a group of very young children carrying baskets. I join them. We walk down toward the garden and chicken yard. Two children enter the henhouse and begin gathering the day's eggs. The rest follow the cook into the garden to harvest vegetables for lunch. Several older children are already at work in the garden, weeding and watering some of the beds with grey water from the school. Each child has his own private spot where he may grow anything he wishes, and all share the work in the kitchen garden. With baskets full of vegetables and eggs, the children return to the school where they will help the cook prepare lunch. The children find growing, gathering, preparing, and eating their own food a very exciting business.

It has been a busy morning for the children, the adults, and myself. There is a sense of well-being and wholesomeness here. The children are very motivated, self-directed, and cooperative. I find that I am eagerly anticipating the rest of my stay at the Hillside School.

SCIENTIFIC AND TECHNOLOGICAL INVENTIONS

Energy

With oil scarce and extremely expensive and nuclear development all but halted, scientists have developed renewable power sources. These include solar, wind, tidal, geothermal, biomass, and ocean thermal gradient. While power from these sources can be fed into a national network, more and more people and industries have opted to use private sources of power, supplemented, if necessary, by the national network. Consumption has dropped as people have adopted a more frugal lifestyle.

Architecture

Buildings are now designed to take advantage of local microclimates and to use local materials. Endlessly duplicated tract housing is a thing of the past. Buildings are not only more energy efficient and flexible in design and usage, they are integrated into and complement the local landscape.

Computer and Communication Networks

Computer hardware, software, and programming techniques have grown far more sophisticated. A person who does not have some basic understanding of computers is considered to be partially illiterate, yet this is rare because computers are far easier to use than in the past. Many computers are voice-activated (Rosen, 1976, pp. 355-357) and thus can be used by even very young children. Advances in programming have created computer programs which are truly responsive to the input of the user, making computers an extremely valuable educational tool. Natural

language programming rather than artificial computer languages has made programming a technique which can be used by almost anyone.

Major libraries around the world have been computerized, including the Library of Congress. Few books are printed any more, and libraries have become more like museums. Synchronous satellites (Rosen, 1976, pp. 357-360) make transmission of information and real time voice and video communication instantaneous. Not only can information be displayed on a TV-type screen, but holographic theaters in schools and community centers make it possible to show movies, plays, art works, and other types of information in three dimensions (Rosen, 1976, pp. 430-437).

Transportation

Privately owned automobiles are virtually nonexistent. People travel by foot and bicycle wherever possible and use public transportation for longer distances. Electric, hydorgen-powered, or alcohol burning buses and trains are the major types of transportation locally. Airplanes are still used for long distances, but usage has dropped drastically due to expense and diminished availability. Continental travel is usually by train and even transoceanic journeys are often by modern schooners having auxiliary engines. With instantaneous voice and visual communication and a slower pace of life people are no longer in such a hurry to get somewhere else nor is it so often necessary to travel except for pleasure.

Medicine

Most viruses are now under control and the common cold is a thing of the past. People are basically healthy, spend much more time outdoors and in vigorous physical activity than in the past, and in combination with a more frugal lifestyle, obesity has been dramatically reduced in this country. Arms, legs, and most defective organs can be easily replaced by sophisticated electronic devices or cloned parts. Genetic counseling and both pre- and post-conception medical techniques have significantly reduced the incidence of inherited conditions and diseases.

Fertility control, long a world-wide problem, has yielded to a variety of safe and reversible medical techniques, usable both on the individual and community level. In combination with financial incentives and social pressures, these techniques have resulted in global stabilization of population growth, and in many areas, a population decline.

SOCIAL CHANGES

Globalism and Peace

A number of factors have facilitated the move toward globalism. The consequences of modern warfare have been made even more explicit by both the several disasters in nuclear plants and by the increasingly imaginative and nationally incapacitating actions of various terrorist groups. The move toward peace and understanding has been facilitated by instantaneous world wide communications and equal access to information for all people. More and more research dollars have been given to peace research and the establishments of institutes of peace. The need for cooperation ranging from interpersonal to global has become a major feature of education beginning with the youngest children. People are becoming increasingly aware of and tolerant of individual and cultural differences. While perfect harmony is clearly an unattainable dream, the world has certainly become a happier and more peaceful place to live.

Population and Food

The population crisis and resulting mass starvation and epidemics in many parts of the world became so severe that even the world's more conservative religions recognized the need for fertility control. Religious sanction, coupled with radically improved methods of birth control and financial and social incentives, has led to the stabilization of world population and even reduction in some areas. It has finally become possible to feed the world's peoples, and almost all now live above the subsistance level.

The Family

There is more and more variation in family structure now than there was in the past. The nuclear family and single-parent family have by no means disappeared, but there is a return to the extended family and a change to families made up of varying numbers of adults and children, not all blood relatives. An individual may also experience a variety of family styles during his lifetime.

Attitudes toward parenting have changed over the years. Deciding not to be a parent is a fully acceptable and praiseworthy alternative. Those people who decide to have children typically give it much more thought. It is also realized that parenting is a learned skill and not an innate ability. This frees parents from the impossible burden of perfection and allows them to make mistakes without overwhelming guilt and to seek help when it is needed.

Voluntary Frugality

In a book written in 1978, Lester R. Brown said:

> The forthcoming changes will permeate every dimension of human existence: lifestyles, landownership patterns, economic structures, family size, international relations, and the educational system. ...Change will either be mandatory or voluntary--some change will be guided by the marketplace, some will come about through voluntary changes in behavior. The basic choice will be between voluntary simplicity and enforced austerity (p. 324).

Most people have elected voluntary simplicity and a lifestyle that is far more independent than that of the mid-20th century. By this I mean independence from foreign oil exporters, from union-management warfare, from rationing of scarce goods and

resources, and from nationwide networks of production and distribution of power, manufactured goods, and food. This has resulted in a return to local production, distribution, and consumption, small-scale farming and namufacturing, and local and often worker ownership of industry. On the individual level, people know more survival skills than their parents and grandparents. Most people can garden, sew, repair their own household and farm equipment, and the like. There are more generalists and far fewer specialists.

Education

The early years have finally been recognized as the most important to the growth and development of the individual. More funding and research have led to dramatic advances in our understanding of the young child and our ability to provide for his education.

We find, however, that the need and desire for education do not end with the attainment of adulthood. Lifelong learning has become a reality by 2001. Access to information and instantaneous communication through computer networks have made it possible. Most education at the higher levels is self-directed and relates to acquiring new skills, preparing for job changes, and making the best use of one's leisure time. For the sheer joy of it, people often become scholars in some area of knowledge and are able to share their discoveries and ideas with others having similar interests via the satellite communication network.

PHYSICAL CHANGES AND SPACE AND EQUIPMENT

The Physical Setting

The land for the Hillside School includes several acres near a small midwestern city which were determined to be too wooded and hilly for commercial development. It is considered optimal to have a natural setting and plenty of outdoor space for a school because so many city children today live in apartments or other multi-family housing with little open space nearby. Here the concept that man is a part of nature rather than separate from or superior to it can assume reality for the children under the guidance of their teachers and other adults.

The school itself is built into the south side of one of the hills and is mostly underground. It is designed especially for the local microclimate and is extremely energy efficient. The large central room is capped by a double geodesic dome. The larger outer dome contains a greenhouse and the inner dome covers the lightwell and stairway into the central school room below forming an airlock (Mother Earth News, March/April, 1978, pp. 101-103). The south-facing wall of the building is glass and can be opened onto a terrace when the weather is warm. The central room and the smaller rooms surrounding it are basically half-domes, slightly irregular in shape and painted in a variety of colors appropriate to the function of the room. Besides being less expensive to build and stronger structurally, the half-dome shape is visually and psychologically pleasing, offering relief from the traditional box-shaped room. The central room gets plenty of natural light during the day. The surrounding rooms are lit

either by skylights or artificial lights.

A special concept is the use of nooks (Nelson, 1978), small rooms on the periphery of the main room. There are four sensory nooks, visual, auditory, tactile, and gustatory and olfactory combined. These are child-sized rooms, too small for an adult to stand up in comfortably, and they are interconnected by a crawl space. In the visual nook, for example, there is a variety of projection equipment which can be operated by the children to show slides and movies. Science equipment is handy to use in experiments with light and color. The auditory room has tape recorders, a quadraphonic system, earphones, musical instruments and other sound makers of all types, and comfortable seating. The tactile room contains textured walls and floor, fabric, and many other types of materials. Scented materials and things to taste are changed frequently in the taste and smell nook. All nooks have artificial lighting controlled by a rheostat, allowing the children to dim the room so that vision does not interfere with other sensory impressions.

Another series of three nooks are time-oriented--past, present, and future (Nelson, 1978). These contain collections of objects, pictures, and movies on a single theme which changes periodically. The theme may be transportation, medical equipment, housing, clothing, toys, and the like from the past, present, and future. These nooks are designed to help the young child orient himself in time and distinguish the past and future from the present.

Other peripheral rooms are used for a variety of purposes.

There is a holographic theater where movies are seen in three dimensions. Other rooms include bathrooms, utility rooms, and storage.

Because it is underground, the school takes advantage of the temperature moderating qualities of the earth around it. Wind generators and solar panels are enough to supply what little heat and light is needed, and the building remains cool in the summer without air conditioning much as a cave does.

Hillside House is built nearby and is the same basic plan as the school, a large central room with a number of smaller rooms around the periphery. The director or one of the teachers lives here permanently, and there is space for other adults and a number of children to visit. The central room is the main living area and kitchen. The smaller rooms contain bedrooms, bathrooms, and storage.

There is a terraced play and work area opening directly off the south wall of the school. On pleasant days activities can be brought outdoors. The grassy areas have permanent playground structures built by parents of wood and industrial castoffs. There is also an area where the children can build which is in a constant state of metamorphasis. The children frequently explore the hills around the school, climb trees, and build and rebuild obstacle courses and various structures.

The only fenced area is the garden and chicken yard. This area has a fence dividing it in half--the garden and the chickens alternate sides each season (Carpenter, 1979). The chickens eat the refuse from the old garden and make the area insect free as

well as fertilizing it for the next season's garden. The chicken house is designed so that it can be opened into either yard and into a "moat" which surrounds the entire yard to act as a further insect barrier (Organic Gardening, January, 1979, p. 22).

Classroom Equipment

Due to expense and scarcity, consumables are kept to a bare minimum. There are a few books for the children to hold, but most literature is stored in the computer network. Real slates and chalk and "magic slates" are used rather than paper. Art supplies are natural materials gathered outdoors, industrial castoffs, and junk of various kinds. Most manipulatives are wooden. Plastic items, made from petroleum, are unavailable. Most of the classroom furniture is also wooden, and many items are parent and teacher produced. Almost everything is movable to give maximum flexibility to the interior space.

The nooks, of course, are permanently located, but as environments they change frequently. Items in the temporal nooks change periodically as do materials in the tactile and the smell and taste nook. An enormous variety of sounds and sights are available in the sight and hearing nooks through the computer network.

Computer information and communication networks, in the year 2001, are both a fact of life and, with the highly advanced programming and hardware of the last decade, a very exciting and effective learning tool, appropriate for very young children as well as older people. There are several terminals hooked up to the Library of Congress Computer Network where almost any type of

information is available. The holographic theater is a part of this system. These terminals can also be used as visionphones to talk to people in any part of the world via satellite link. Voice-activated programs and natural language programming make it possible for even the youngest children to store and retrieve information from the system.

THE CURRICULUM

Like all good programs, and this is especially important at the early childhood level, this one is interdisciplinary. In order to talk about a program it is often necessary to make it sound as if it is divided into discreet subject areas, yet this should not be the case in practice. I am not attempting to describe an entire curriculum here but just the aspects which I feel are especially new and relevant to the year 2001 in the context of the Hillside School--the environment and the future.

The Environment

1. Global

During a time when planetary resources are becoming increasingly scarce and the possibility of global annihilation is more than a science fiction writer's fantasy, the Spaceship Earth ethic has become an imperative. It is crucial that young children not only learn to understand other cultures but also learn to tolerate and appreciate differences in other people(s).

Instantaneous satellite communication facilitates multi-cultural understanding by permitting live audio and vidio contact with people around the world whenever desired. Schools can adopt a companion school elsewhere in the world and visit the sister school daily. This would include learning each other's language, observing daily activities, and sharing songs, literature, recipes, and therefore trying other menus. Older children could develop personal friendships

with people in other countries, much as children in the past had pen pals. In adults, this would develop into networks of people with mutual interests, often scholarly.

2. Technological

The major innovation in classroom technology is the computer. Far more sophisticated than the teaching machines of the past, computers now have the capacity to be responsive to differences in each individual child. While computers can never replace the human element so crucial in teaching young children, they can free the teacher from the didactic elements of teaching to concentrate on the humanistic ones. The drill-type exercises of the past, almost always boring to both teacher and children, have been completely eliminated. The computer prescribes on an individual basis, and the course of each lesson depends on the child's responses. The effectiveness of the old television shows such as Sesame Street is multiplied by the personalized aspect of each interaction with an individual child.

Voice-activated computers allow even the youngest preschool children access to appropriate programs. Young children enjoy hearing the same stories again and again, far beyond the patience of even the most easy-going adult. The computer can display a story, either with still pictures as in a book or with motion pictures, showing the words as they are spoken. The child will come to understand that the spoken word and the written word are related and will eventually learn to read more and more words. Games from the

very simple to the very complex can be played on the computer, both alone and with a partner. Once the child has had much contact with number concepts using manipulative materials and is ready for the abstract symbols, the computer is invaluable. Older children will use the computer as a resource for many types of projects, much as they used the library/learning center of the past, only far more information will be available to them, presented in much more innovative ways.

The holographic theater offers all the advantages of having a theater-in-the-round at your beck and call. Plays, movies, sculpture, laboratory demonstrations, all can be seen in three dimensions. The school will have access to this information through the national computer network, bringing the whole world closer to the children.

3. Natural

A. Conservation--In a crowded world of vastly diminished resources, people can no longer afford to see themselves as superior to nature. This belief and the belief that it is man's right and duty to conquer nature gained considerable force following the industrial revolution. It is obvious that the continuation of this ethic in the world of 2001 will only lead to destruction. We and our children must learn to live as a part of nature.

Using things up, making do, and doing without is a part of life at the Hillside School. Consumable items are never used when something else will do. Paper is rarely

used in favor of slates. Grey water is recycled to the garden. Adults emphasize awareness of conservation.

Children at the Hillside School learn to observe the natural cycles of the plants and animals on the land surrounding the school without disturbing them. The chickens and the garden also help the children become aware of conservation and natural cycles. The children feed the chickens, gather the eggs, and cook and eat them. At other times the children can observe hens laying eggs, hatching them, and the growth of the chicks. They see the chickens keeping the garden area free of insects. The children also participate in the gardening, both helping in the kitchen garden and having a small plot of their own. They prepare the soil, plant seeds, tend the plants, and finally gather, prepare, and eat their own vegetables. Scraps are either composted or fed to the chickens, thus completing the cycle.

B. Taking care of classroom materials--While not a part of the natural environment per se, taking care of one's own things and those of others has become very important in 2001. Things are handled very carefully and mended when broken because they are often very difficult or extremely expensive to replace. Children are shown how to handle tools and equipment. When a child damages something, the teacher involves him in its repair. Many of the classroom materials are handmade and both the children and the adults who work with them are engaged in this activity. A child is likely to take care of something he has spent a lot of time making

and feels is important.

C. Sensory nooks--Heightening children's sensory awareness is every bit as important in 2001 as it was in the past and it gives the child a more intense appreciation of the cycles of life around him. The sensory nooks (described in the scenario and in the section on physical changes and space and equipment) facilitate the development and refinement of sight, hearing, touch, and taste and smell.

4. Interpersonal

In a world where cooperation and tolerance of other's differences are basic to the survival of humanity, skill in interpersonal relationships must begin in early childhood. Teachers freed from the didactic chores of teaching, have more time to devote to humanistic interactions. They are very frequently involved with individual children or small groups. The dream discussion group discussed in the scenario is an example of this.

While independence in self care is stressed, competition is minimized. Many games and tasks of all sorts are so designed that they can only be accomplished in cooperation with one or more other people. Older children are encouraged to develop responsibility toward younger ones by helping them with difficult tasks, teaching them to do many things, and accompanying them as buddies on excursions around the school grounds.

The Future

1. Time sense

In order to encourage a future-focused way of thinking it is necessary that young children develop some idea of past, present, and future, and the passage of time. In addition to the usual teacher emphasis on today, yesterday, tomorrow, morning, and afternoon, a new feature has been added to the school. The time nooks, three small child-sized rooms, are designed to contain changing displays of objects, pictures, and films from the past, present, and future. The theme changes from time to time and may deal with such topics as transportation, medical instruments, clothing, household objects, and the like.

2. Alternatives

Almost all problems have more than one solution. Non-linear thought and creative answers are needed to deal with the issues of both the present and the future. Children are consistently encouraged to think creatively, to search for more than one answer, to try unorthodox solutions, and to evaluate the results of their decisions. School materials, projects, and computer programs are all designed for multiple and diverse approaches and uses by the children. For example, when planning a bridge to cross a shallow stream near the school, the children must consider the characteristics of the stream, the materials available, and their own skills when selecting a design. Are stepping stones or a low water bridge appropriate? How high does the water rise in the

height of the spring flood season? Would a suspension bridge be more appropriate? What engineering problems are involved? How much weight would the bridge carry? What information can we get from the computer? Is another design better? What new designs can we invent? How can we evaluate them?

3. Coping/planning/control

The ability to work cooperatively with others must rest upon a strong positive self-concept and confidence in one's own abilities. Some of the components of a strong self-concept are skill in interpersonal relationships and the ability to take care of oneself and one's environment. In the area of self care, the children at the Hillside School learn to dress and undress themselves, care for their bodies, keep their environment clean and orderly, care for plants and animals, and grow some of their own food and prepare and eat it. The child who can function independently of constant adult care gains much self confidence and is ready and able to assume some responsibility for helping others.

Through planning, through awareness of the future when considering alternatives to present problems, people gain control over their own futures rather than just being swept along by the tide of change. Long ago John Dewey (1916) said that the aim of education is to help people gain control over their own experience. This is still the foremost goal of educati[illegible]n 2001--to develop in children those qualities which will make them masters of their own lives.

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